

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P926292

Luminaire Tested: DFN2DIP-TR3F0-070D040US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926292  
REPORT IS A COMBINATION OF REPORTS P900293 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-070D040US950-FLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

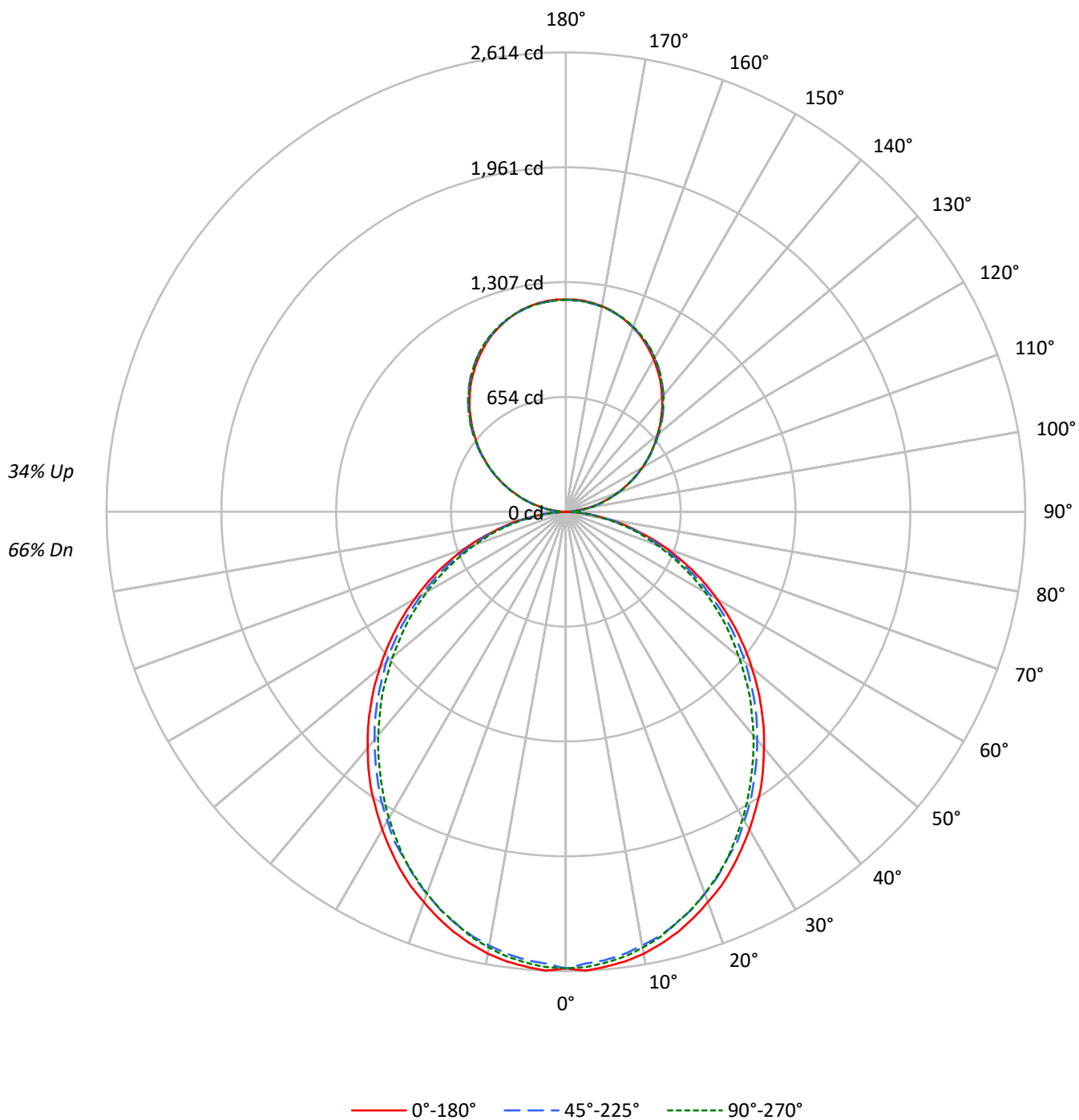
Lumens per Lamp: N/A  
Luminaire Lumens: 9988.4 lumens  
Efficiency: N/A  
Efficacy: 100.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Direct

Input Watts (W): 99.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P926292

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### Luminous Intensity Polar Plot



TEST NUMBER: P926292

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20 |    |    |    | 20 |    |    |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50 |    |    |    | 30 |    |    |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| 0   | 111 | 111 | 111 | 111 | 104 | 104 | 104 | 104 | 92 | 92 | 92 | 81 | 81 | 81 | 71 | 71 | 71 |
| 1   | 101 | 97  | 93  | 89  | 95  | 91  | 88  | 85  | 81 | 78 | 76 | 72 | 70 | 68 | 63 | 61 | 60 |
| 2   | 92  | 85  | 78  | 73  | 87  | 80  | 74  | 70  | 71 | 67 | 63 | 63 | 60 | 57 | 55 | 53 | 51 |
| 3   | 84  | 75  | 67  | 61  | 79  | 70  | 64  | 58  | 63 | 57 | 53 | 56 | 51 | 48 | 49 | 46 | 43 |
| 4   | 77  | 66  | 58  | 52  | 72  | 63  | 55  | 50  | 56 | 50 | 45 | 50 | 45 | 41 | 44 | 40 | 37 |
| 5   | 71  | 59  | 51  | 44  | 67  | 56  | 48  | 43  | 50 | 44 | 39 | 45 | 40 | 36 | 40 | 36 | 32 |
| 6   | 65  | 53  | 45  | 39  | 61  | 50  | 43  | 37  | 45 | 39 | 34 | 40 | 35 | 31 | 36 | 32 | 29 |
| 7   | 61  | 48  | 40  | 34  | 57  | 46  | 38  | 33  | 41 | 35 | 30 | 37 | 32 | 28 | 33 | 29 | 25 |
| 8   | 56  | 44  | 36  | 30  | 53  | 42  | 34  | 29  | 38 | 31 | 27 | 34 | 29 | 25 | 30 | 26 | 23 |
| 9   | 53  | 40  | 32  | 27  | 49  | 38  | 31  | 26  | 34 | 28 | 24 | 31 | 26 | 22 | 28 | 24 | 21 |
| 10  | 49  | 37  | 29  | 24  | 46  | 35  | 28  | 24  | 32 | 26 | 22 | 29 | 24 | 20 | 26 | 22 | 19 |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3238 | 3238 | 3238 |
| 5°  | 3241 | 3190 | 3212 |
| 10° | 3213 | 3144 | 3167 |
| 15° | 3164 | 3090 | 3096 |
| 20° | 3098 | 3015 | 3025 |
| 25° | 3033 | 2927 | 2942 |
| 30° | 2952 | 2844 | 2838 |
| 35° | 2874 | 2747 | 2728 |
| 40° | 2780 | 2648 | 2622 |
| 45° | 2685 | 2550 | 2515 |
| 50° | 2581 | 2446 | 2390 |
| 55° | 2472 | 2326 | 2275 |
| 60° | 2349 | 2184 | 2144 |
| 65° | 2215 | 2037 | 1988 |
| 70° | 2044 | 1857 | 1820 |
| 75° | 1807 | 1641 | 1662 |
| 80° | 1520 | 1365 | 1366 |
| 85° | 1075 | 899  | 882  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2685 cd/sqm

TEST NUMBER: P926292

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 244.6  | 2.4       |
| 10°-20°   | 688.1  | 6.9       |
| 20°-30°   | 1011.3 | 10.1      |
| 30°-40°   | 1174.5 | 11.8      |
| 40°-50°   | 1173.1 | 11.7      |
| 50°-60°   | 1022.9 | 10.2      |
| 60°-70°   | 756.1  | 7.6       |
| 70°-80°   | 427.8  | 4.3       |
| 80°-90°   | 116.4  | 1.2       |
| 90°-100°  | 74.7   | 0.7       |
| 100°-110° | 237.3  | 2.4       |
| 110°-120° | 406.1  | 4.1       |
| 120°-130° | 534.0  | 5.3       |
| 130°-140° | 599.4  | 6.0       |
| 140°-150° | 587.8  | 5.9       |
| 150°-160° | 493.1  | 4.9       |
| 160°-170° | 327.0  | 3.3       |
| 170°-180° | 114.3  | 1.1       |
| 0°-30°    | 1943.9 | 19.5      |
| 0°-40°    | 3118.5 | 31.2      |
| 0°-60°    | 5314.4 | 53.2      |
| 0°-90°    | 6614.7 | 66.2      |
| 90°-120°  | 718.0  | 7.2       |
| 90°-150°  | 2439.3 | 24.4      |
| 90°-180°  | 3374.0 | 33.8      |
| 0°-180°   | 9988.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2598 | 2598  | 2598 | 2598  | 2598 |      |
| 5°   | 2598 | 2589  | 2561 | 2581  | 2576 | 247  |
| 15°  | 2474 | 2459  | 2426 | 2436  | 2424 | 697  |
| 25°  | 2239 | 2219  | 2176 | 2181  | 2176 | 1030 |
| 35°  | 1932 | 1907  | 1866 | 1851  | 1839 | 1206 |
| 45°  | 1572 | 1554  | 1517 | 1489  | 1479 | 1213 |
| 55°  | 1189 | 1174  | 1144 | 1114  | 1102 | 1063 |
| 65°  | 802  | 787   | 762  | 740   | 727  | 793  |
| 75°  | 420  | 415   | 402  | 387   | 392  | 448  |
| 85°  | 102  | 100   | 98   | 90    | 88   | 114  |
| 90°  | 1    | 13    | 36   | 34    | 34   | 10   |
| 95°  | 53   | 63    | 65   | 65    | 63   | 59   |
| 105° | 219  | 222   | 224  | 226   | 226  | 231  |
| 115° | 408  | 413   | 412  | 410   | 408  | 403  |
| 125° | 593  | 602   | 599  | 596   | 594  | 530  |
| 135° | 767  | 778   | 780  | 779   | 776  | 593  |
| 145° | 931  | 938   | 944  | 945   | 941  | 582  |
| 155° | 1064 | 1067  | 1070 | 1076  | 1072 | 490  |
| 165° | 1158 | 1157  | 1157 | 1164  | 1159 | 327  |
| 175° | 1205 | 1202  | 1200 | 1207  | 1201 | 114  |
| 180° | 1207 | 1207  | 1207 | 1207  | 1207 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2598.4 | 2598.4 | 2598.4 | 2598.4 | 2598.4 |
| 2.5°   | 2613.6 | 2601.1 | 2573.5 | 2598.4 | 2593.6 |
| 5°     | 2598.4 | 2588.7 | 2561.1 | 2581.0 | 2576.2 |
| 7.5°   | 2581.0 | 2566.1 | 2538.5 | 2558.7 | 2553.7 |
| 10°    | 2553.7 | 2536.1 | 2506.2 | 2526.1 | 2518.7 |
| 12.5°  | 2516.0 | 2501.2 | 2471.2 | 2483.6 | 2478.6 |
| 15°    | 2473.6 | 2458.7 | 2426.1 | 2436.2 | 2423.7 |
| 17.5°  | 2421.1 | 2406.3 | 2373.6 | 2386.1 | 2373.6 |
| 20°    | 2363.5 | 2348.7 | 2313.7 | 2321.2 | 2311.4 |
| 22.5°  | 2306.3 | 2283.8 | 2251.2 | 2251.2 | 2246.1 |
| 25°    | 2238.8 | 2218.8 | 2176.5 | 2181.2 | 2176.5 |
| 27.5°  | 2163.7 | 2146.2 | 2113.9 | 2106.4 | 2093.9 |
| 30°    | 2089.0 | 2068.7 | 2031.4 | 2024.0 | 2013.9 |
| 32.5°  | 2008.8 | 1994.1 | 1954.0 | 1938.9 | 1928.8 |
| 35°    | 1931.5 | 1906.6 | 1866.5 | 1851.4 | 1838.9 |
| 37.5°  | 1844.0 | 1821.5 | 1781.4 | 1763.9 | 1751.4 |
| 40°    | 1754.1 | 1734.0 | 1693.9 | 1671.7 | 1661.6 |
| 42.5°  | 1666.6 | 1646.5 | 1606.7 | 1581.5 | 1566.7 |
| 45°    | 1571.7 | 1554.3 | 1516.6 | 1489.3 | 1479.2 |
| 47.5°  | 1479.2 | 1461.7 | 1421.7 | 1394.1 | 1379.3 |
| 50°    | 1381.7 | 1369.2 | 1334.2 | 1299.3 | 1286.8 |
| 52.5°  | 1286.8 | 1269.3 | 1237.0 | 1209.4 | 1191.8 |
| 55°    | 1189.4 | 1174.4 | 1144.4 | 1114.5 | 1102.0 |
| 57.5°  | 1091.9 | 1079.5 | 1046.8 | 1016.9 | 1006.9 |
| 60°    | 994.4  | 984.5  | 949.6  | 922.0  | 914.6  |
| 62.5°  | 899.4  | 882.0  | 857.1  | 832.2  | 822.1  |
| 65°    | 802.2  | 787.0  | 762.2  | 739.6  | 727.1  |
| 67.5°  | 702.2  | 689.6  | 667.2  | 649.8  | 639.7  |
| 70°    | 609.7  | 599.7  | 577.1  | 559.6  | 549.8  |
| 72.5°  | 514.8  | 504.8  | 492.3  | 474.8  | 467.4  |
| 75°    | 419.7  | 414.9  | 402.1  | 387.3  | 392.4  |
| 77.5°  | 334.9  | 324.7  | 319.7  | 312.2  | 304.9  |
| 80°    | 249.9  | 247.4  | 242.3  | 234.9  | 229.8  |
| 82.5°  | 169.9  | 169.9  | 167.5  | 157.5  | 157.5  |
| 85°    | 102.4  | 100.0  | 97.6   | 89.9   | 87.5   |
| 87.5°  | 45.0   | 40.1   | 35.0   | 27.6   | 24.9   |
| 90°    | 1.0    | 13.1   | 35.7   | 33.5   | 34.5   |
| 92.5°  | 22.5   | 30.5   | 31.7   | 32.7   | 32.7   |
| 95°    | 53.1   | 63.3   | 65.2   | 65.2   | 63.3   |
| 97.5°  | 88.4   | 97.9   | 101.9  | 101.9  | 101.9  |
| 100°   | 129.2  | 137.6  | 140.4  | 140.4  | 139.4  |
| 102.5° | 172.1  | 178.3  | 182.3  | 183.4  | 182.3  |
| 105°   | 219.0  | 221.9  | 224.1  | 225.9  | 225.9  |
| 107.5° | 265.6  | 270.0  | 270.0  | 270.6  | 265.6  |
| 110°   | 310.7  | 316.5  | 316.5  | 316.5  | 313.7  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 359.5  | 365.7  | 364.5  | 361.7  | 359.5  |
| 115°   | 407.5  | 413.4  | 411.5  | 410.4  | 407.5  |
| 117.5° | 455.2  | 463.2  | 458.1  | 455.2  | 452.3  |
| 120°   | 503.2  | 511.2  | 503.2  | 503.2  | 499.9  |
| 122.5° | 546.8  | 557.0  | 552.0  | 549.0  | 546.8  |
| 125°   | 592.7  | 601.8  | 598.9  | 595.6  | 594.5  |
| 127.5° | 637.5  | 648.7  | 644.7  | 640.3  | 637.5  |
| 130°   | 679.2  | 692.4  | 690.6  | 688.4  | 684.4  |
| 132.5° | 726.2  | 736.4  | 737.2  | 732.0  | 729.1  |
| 135°   | 766.6  | 777.9  | 780.1  | 778.9  | 776.1  |
| 137.5° | 811.8  | 820.8  | 822.6  | 821.9  | 817.6  |
| 140°   | 851.3  | 860.5  | 865.6  | 865.6  | 861.6  |
| 142.5° | 892.2  | 901.2  | 904.1  | 905.3  | 901.2  |
| 145°   | 930.7  | 938.0  | 943.8  | 944.9  | 940.9  |
| 147.5° | 965.3  | 974.3  | 978.7  | 980.5  | 976.5  |
| 150°   | 1000.9 | 1007.1 | 1011.1 | 1014.4 | 1011.1 |
| 152.5° | 1032.6 | 1038.7 | 1043.9 | 1047.9 | 1043.9 |
| 155°   | 1064.2 | 1067.1 | 1070.4 | 1075.5 | 1072.2 |
| 157.5° | 1091.6 | 1093.7 | 1095.5 | 1102.8 | 1097.7 |
| 160°   | 1115.9 | 1118.1 | 1119.1 | 1125.3 | 1121.0 |
| 162.5° | 1138.4 | 1138.4 | 1139.6 | 1146.4 | 1141.4 |
| 165°   | 1157.8 | 1156.6 | 1156.6 | 1163.9 | 1158.8 |
| 167.5° | 1175.2 | 1171.9 | 1171.9 | 1179.2 | 1174.1 |
| 170°   | 1188.3 | 1185.3 | 1184.3 | 1191.5 | 1185.3 |
| 172.5° | 1197.4 | 1194.5 | 1193.4 | 1200.7 | 1194.5 |
| 175°   | 1204.7 | 1201.8 | 1199.6 | 1206.8 | 1200.7 |
| 177.5° | 1208.7 | 1205.8 | 1203.6 | 1209.8 | 1203.6 |
| 180°   | 1206.8 | 1206.8 | 1206.8 | 1206.8 | 1206.8 |

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**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 12.68            | 13.71 | 13.48 | 14.53 | 15.55 | 12.25          | 13.28 | 13.05 | 14.11 | 15.12 |
|                 | 3H   | 14.34            | 15.27 | 15.16 | 16.10 | 17.15 | 13.87          | 14.80 | 14.69 | 15.63 | 16.68 |
|                 | 4H   | 14.93            | 15.80 | 15.76 | 16.65 | 17.71 | 14.46          | 15.34 | 15.30 | 16.18 | 17.24 |
|                 | 6H   | 15.33            | 16.14 | 16.18 | 16.99 | 18.06 | 14.86          | 15.67 | 15.71 | 16.52 | 17.59 |
|                 | 8H   | 15.44            | 16.20 | 16.29 | 17.07 | 18.15 | 14.97          | 15.74 | 15.82 | 16.61 | 17.68 |
|                 | 12H  | 15.49            | 16.22 | 16.35 | 17.08 | 18.18 | 15.01          | 15.75 | 15.88 | 16.61 | 17.71 |
| 4H              | 2H   | 13.16            | 14.03 | 13.99 | 14.87 | 15.93 | 12.81          | 13.69 | 13.65 | 14.53 | 15.59 |
|                 | 3H   | 15.03            | 15.76 | 15.88 | 16.63 | 17.71 | 14.64          | 15.37 | 15.49 | 16.24 | 17.32 |
|                 | 4H   | 15.74            | 16.40 | 16.60 | 17.28 | 18.38 | 15.34          | 16.00 | 16.20 | 16.88 | 17.98 |
|                 | 6H   | 16.26            | 16.83 | 17.13 | 17.73 | 18.83 | 15.85          | 16.43 | 16.73 | 17.32 | 18.43 |
|                 | 8H   | 16.41            | 16.94 | 17.29 | 17.83 | 18.95 | 16.00          | 16.54 | 16.88 | 17.43 | 18.55 |
|                 | 12H  | 16.48            | 16.97 | 17.38 | 17.88 | 19.00 | 16.07          | 16.55 | 16.97 | 17.46 | 18.59 |
| 8H              | 4H   | 15.95            | 16.48 | 16.83 | 17.38 | 18.49 | 15.59          | 16.13 | 16.47 | 17.02 | 18.14 |
|                 | 6H   | 16.57            | 17.02 | 17.48 | 17.95 | 19.07 | 16.22          | 16.66 | 17.12 | 17.59 | 18.71 |
|                 | 8H   | 16.79            | 17.18 | 17.71 | 18.11 | 19.25 | 16.43          | 16.82 | 17.35 | 17.75 | 18.88 |
|                 | 12H  | 16.92            | 17.27 | 17.85 | 18.19 | 19.38 | 16.54          | 16.89 | 17.47 | 17.81 | 19.00 |
| 12H             | 4H   | 15.94            | 16.42 | 16.84 | 17.34 | 18.46 | 15.59          | 16.07 | 16.49 | 16.99 | 18.11 |
|                 | 6H   | 16.60            | 17.00 | 17.52 | 17.93 | 19.06 | 16.26          | 16.65 | 17.17 | 17.58 | 18.71 |
|                 | 8H   | 16.85            | 17.19 | 17.77 | 18.11 | 19.30 | 16.49          | 16.84 | 17.42 | 17.76 | 18.95 |

END OF REPORT